

National Hydrography Dataset (NHD)

1:100,000 Scale

Small Streams Advisory Group

January 15, 2009



**Department of Natural Resources
Water Protection Program
Water Pollution Control Branch**

National Hydrography Dataset (NHD)

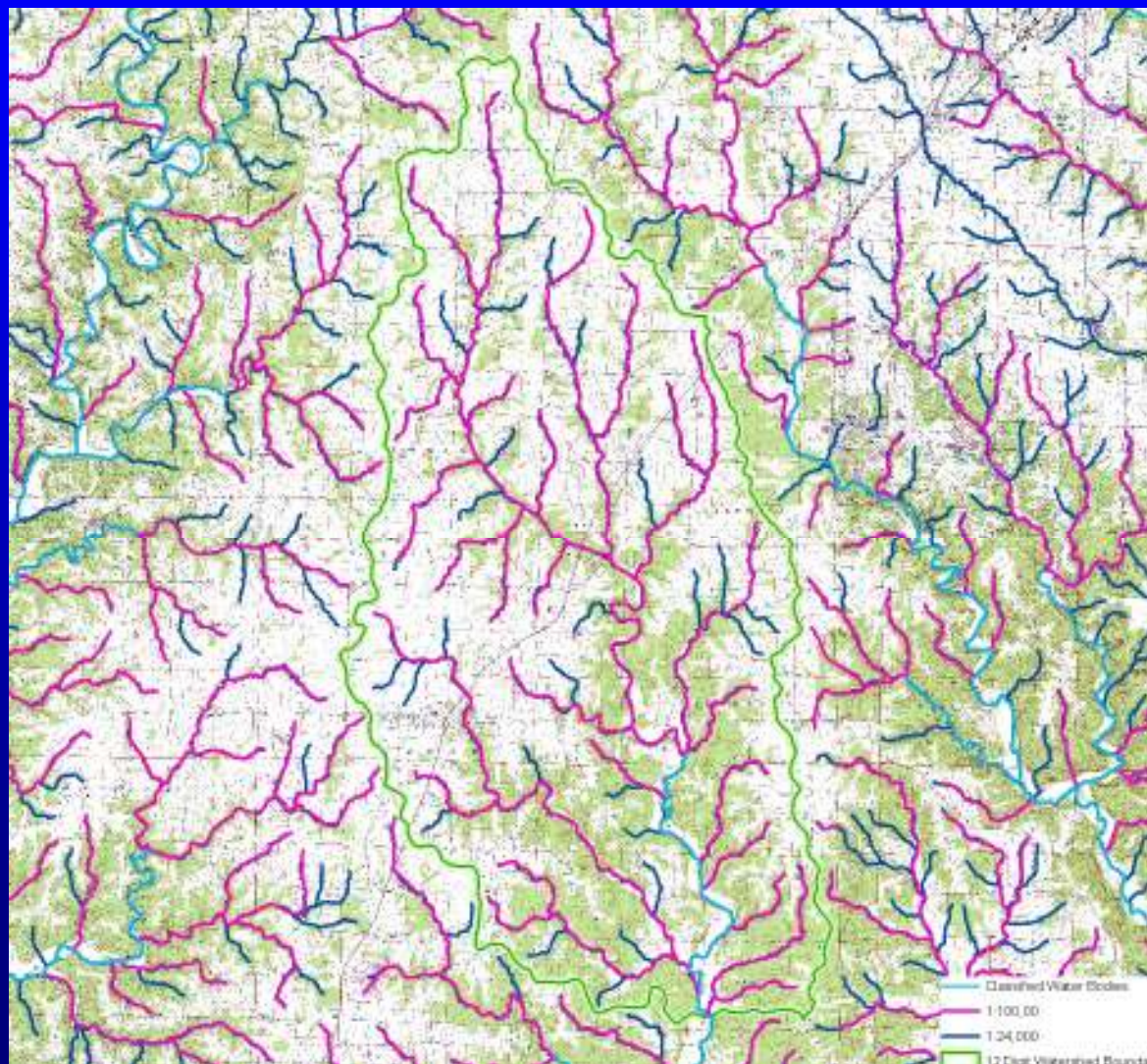
- ◆ Comprehensive set of digital spatial data that contains information about surface water features.
- ◆ Within the NHD, surface water features are combined to form “reaches”.
- ◆ Reaches form the framework for linking water-related data to the NHD surface water drainage network.
- ◆ Enables the analysis and display of water-related data in upstream and downstream order.

National Hydrography Dataset (NHD)

- ◆ NHD based upon USGS Digital Line Graph (DLG) hydrography data integrated with reach-related information from EPA Reach File Version 3 (RF3).
- ◆ NHD initially based on 1:100,000 scale data (30' x 60' quadrangle maps)
- ◆ Higher resolution data have been developed (e.g. 1:24,000 scale data, 7.5' quadrangle maps).

<http://nhd.usgs.gov>

National Hydrography Dataset (NHD)



Stream Network Sampling

- ◆ A preponderance of unclassified streams.
- ◆ Predominantly streams of Order One through Three using Strahler classification system.
- ◆ Variable watershed sizes with several sites located on waters with one square mile or less drainage area.
- ◆ No significant channelization or anthropogenic amplification of base flow.
- ◆ Sites accessible from public thoroughfares.

Stream Network Sampling

- ◆ Seven sites selected for sampling
- ◆ Drainage area ranged from 0.5 mi² to 4.1 mi²
- ◆ Median drainage area = 0.86 mi²
- ◆ Mean drainage area = 1.3 mi²
- ◆ Nearest classified water body to any site was > 6.25 miles downstream.

Stream Network Sampling

- ◆ Drought Condition Status: Phase 3
- ◆ Departure from long-term average: 1.21"
- ◆ Quarterly departure from average: 1.01" - 3.00"
- ◆ Rainfall from past 30 days: 0.00"
- ◆ Twenty-four hour rainfall: 0.00"

Source: University of Missouri Agricultural Extension
and Missouri Drought Assessment Committee, 2006

Stream Network Sampling

Hillers Creek Basin
Callaway County, MO

Watershed ~ 70 mi²

Hillers Creek:

Class P - 5 miles

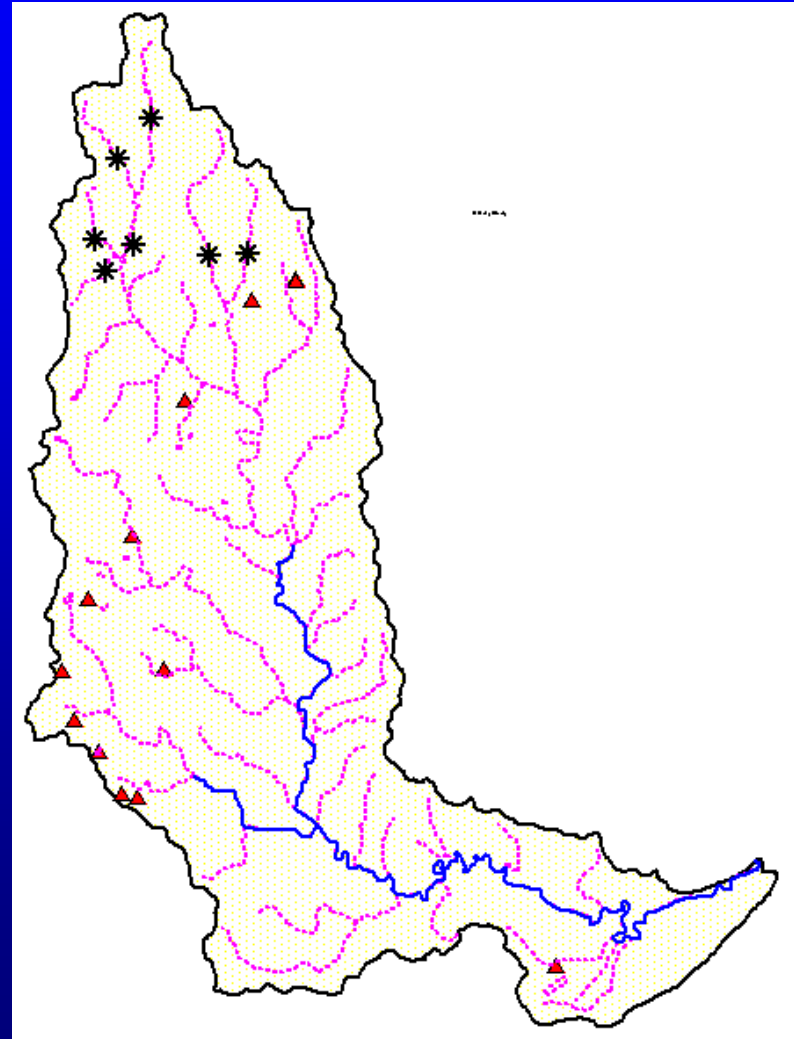
Class C - 11 miles

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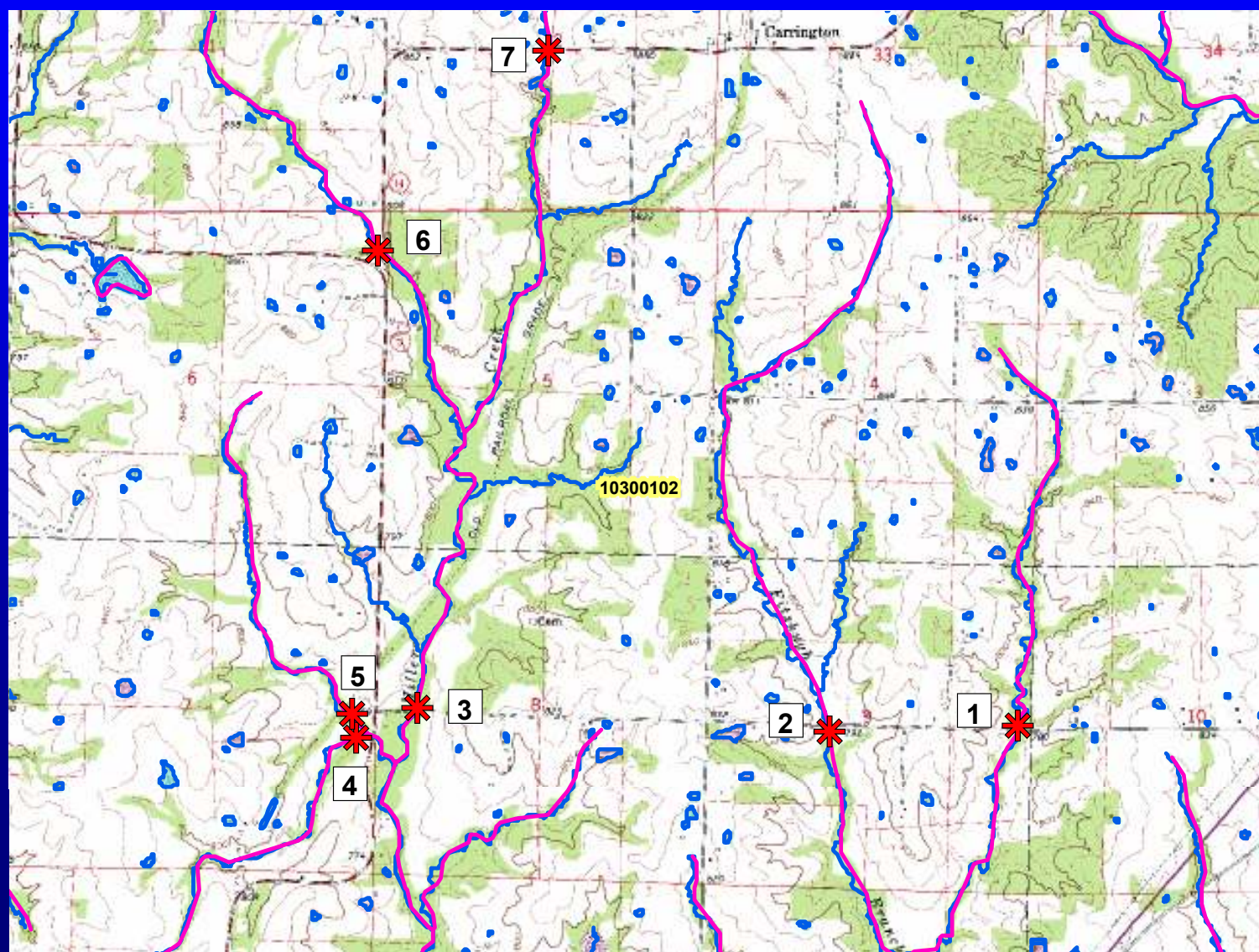
Class C - 3 miles

Unclassified network:

105.6 miles



National Hydrography Dataset (NHD)



1:100,000

1:24,000

Stream Network Sampling - Site 1

Three families of fish found:

- Percidae (darters)
- Centrarchidae (sunfishes)
- Cyprinidae (minnows)

Four types of macroinverts found:

- Ephemoptera (mayflies)
- Gastropoda (snails)
- Crustacea (crayfish)
- Diptera (midges)



Pool, 20'L x 4'W x 6"D

Stream Network Sampling - Site 2



One family of fish found

Three types of invertebrates found

Stream Network Sampling - Site 3

No fish found

Abundant tadpoles

Six types of macroinverts found:

- mayflies
- water beetles
- snails
- crayfish
- dragonflies
- water boatman



Pool, 40'L x 20'W x 2'D

Stream Network Sampling - Site 4



No flow, no pools, no hyporheic habitat
within 5" of substrate elevation

Stream Network Sampling - Site 5



No flow or pools, moist (not wet) substrate
found under streambed

Stream Network Sampling - Site 5.5

Two families of fish found
with fish > 5" long found

Four types of invertebrates found



Approximately 50 yards below
the confluence of Sites 4 & 5,
there was visible streamflow

Stream Network Sampling - Site 6

Two families of fish found

Tadpoles present

Four types of macroinverts found

- mayflies
- snails
- midges
- water boatman



Stream Network Sampling - Site 7

One family of fish found

- minnows

Tadpoles present

- leeches
- midges
- water striders
- whirligig beetles

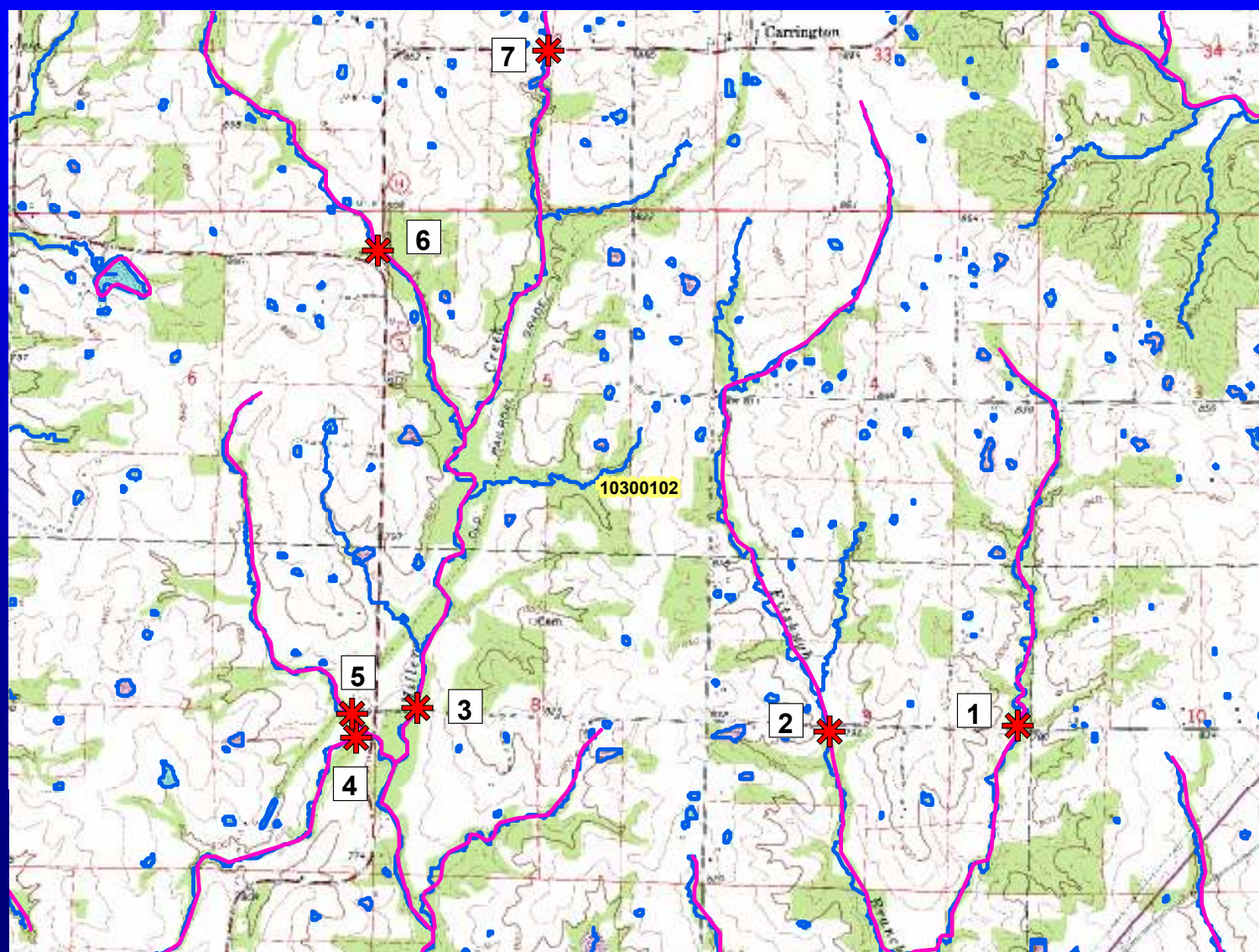


Stream Network Sampling - Review

#1 ~1.05 sq. mile	-- 3 fish, 4 macros
#2 ~1.44 sq. mile	-- 1 fish, 3 macros
#3 ~4.13 sq. mile	-- 0 fish, tadpoles, 6 macros
#4 ~0.50 sq. mile	-- no aquatic habitat
#5 ~0.81 sq. mile	-- possible hyporheic habitat
#5.5 ~1.31 sq. mile	-- 2 fish (incl >5"), 4 macros
#6 ~0.62 sq. mile	-- 2 fish, tadpoles, 4 macros
#7 ~0.86 sq. mile	-- 1 fish, tadpoles, 4 macros

No precipitation for 30 days prior, Phase 3 drought conditions;
< 15 minutes spent sampling per site

National Hydrography Dataset (NHD)



1:100,000

1:24,000

NHD Stream Network Extent

- ◆ WQS Classified Streams = 24,566 miles
- ◆ Missouri NHD 1:100,000 = 103,866 miles
- ◆ Missouri NHD 1:24,000 = 183,600 miles